What is claimed is:

1. An irradiation apparatus for irradiating a radiation beam transported from a particle accelerator onto a location to be irradiated that is positioned on an irradiation table,

said apparatus comprising:

a beam interruption part for interrupting said radiation beam;

a position control part for controlling the position of said irradiation table in such a manner that said radiation beam is irradiated onto the entire surface of said target in a plurality of irradiation zones including an overlapping zone formed by a plurality of irradiations of said radiation beam; and

a multileaf collimator control part for controlling said radiation beam so as to provide a slope to a dose distribution in said overlapping zone of said respective irradiation zones such that the dose distribution is made flat over the entire surface of said target including said overlapping zone by the plurality of irradiations of said radiation beam.

2. The irradiation apparatus as set forth in claim 1, wherein said slope can be approximated by a straight line.

3. The irradiation apparatus as set forth in claim 1, wherein said slope has different gradients and can be approximated by two or more straight lines connected with each other.

4. The irradiation apparatus as set forth in claim 1, wherein said slope changes in a stepwise manner.

5. The irradiation apparatus as set forth in claim 1, wherein said slope can be approximated by a curved line.

6. The irradiation apparatus as set forth in claim 1, wherein said multileaf collimator control includes a multileaf collimator provided with a plurality of pairs of opposed leaves, and said multileaf collimator control part decreases the dose irradiated to said overlapping zone in a direction from a boundary between said overlapping zone and a non-overlapping zone toward another irradiation zone by moving at least one of said opposed leaves in each pair.

7. The irradiation apparatus as set forth in claim 6, wherein said multileaf collimator can be operated by remote control.

8. The irradiation apparatus as set forth in claim 6, wherein the direction in which said leaves are driven to move is parallel to the direction in which said dose decreases.

9. The irradiation apparatus as set forth in claim 6, wherein the direction in which said leaves are driven to move is perpendicular to the direction in which said dose decreases.

10. The irradiation apparatus as set forth in claim 1, wherein said target encloses an area to which said radiation beam is not irradiated.

11. The irradiation apparatus as set forth in claim 1, further comprising a compensating filter commonly usable with at least two or more of said irradiation zones, wherein when irradiation is changed from one of said irradiation zones to another one thereof, the position of said compensating filter is driven to move to a position suitable for irradiation by means of a filter driving mechanism.

12. The irradiation apparatus as set forth in claim 11, further comprising a filter position verification mechanism for verifying the position of said compensating filter.

13. The irradiation apparatus as set forth in claim 1, wherein said irradiation apparatus is incorporated in a radiotherapy system.

14. A irradiation method comprising:

a step of dividing a location to be irradiated that needs irradiation of a radiation beam into two, first and second, irradiation zones partially overlapping with each other;

a step of irradiating the radiation beam to said first irradiation zone in such a manner that the distribution of a dose irradiated to said overlapping zone in said first irradiation zone has a slope that decreases from a boundary between said overlapping zone and a non-overlapping zone of said first irradiation zone toward said second irradiation zone; and

a step of irradiating radiation beam to said second irradiation zone in such a manner that the distribution of a dose irradiated to said overlapping zone in said second irradiation zone has a slope that decreases from a boundary between said overlapping zone and a non-overlapping zone of said second irradiation zone toward said first irradiation zone, with the dose distribution in said target being made flat.

15. An irradiation method comprising:

a step of dividing a location to be irradiated, which needs irradiation of a radiation beam, into three, first through third, partially overlapping irradiation zones each having non-overlapping and overlapping irradiation zones adjoining each other;

a step of irradiating the radiation beam to said first irradiation zone in such a manner that the distribution of a dose irradiated to two overlapping zones in said first irradiation zone overlapping with said second irradiation zone or said third irradiation zone has a slope that decreases from boundaries between said respective overlapping zones and a non-overlapping zone in said first irradiation zone toward said second or third irradiation zone;

a step of irradiating the radiation beam to said second irradiation zone in such a manner that the distribution of a dose irradiated to two overlapping zones in said second irradiation zone overlapping with said first or third irradiation zones has a slope that decreases from boundaries between said respective overlapping zones and a non-overlapping zone in said second irradiation zone toward said first or third irradiation zone, with a total dose distribution in said overlapping zone of said second irradiation zone that overlaps with said first irradiation zone alone being made flat; and

a step of irradiating the radiation beam to said third irradiation zone in such a manner that the distribution of a dose irradiated to two overlapping zones of said third irradiation zone overlapping with said first or second irradiation zones has a slope that decreases from boundaries between said respective overlapping zones and a non-overlapping zone in said third irradiation zone toward said first or second irradiation zone, with a total dose distribution in said overlapping zones of said third irradiation zone that overlap with either one of said first and second irradiation zones being made flat.